CLAIMS	SUPPORT IN SPECIFICATION
71-72	p. 25, lines 36-37; p. 33, lines 11-13; p. 46, line 25 to p. 50, line 20
73-74	p. 25, lines 17-21
75	p. 26, lines 3-8; p. 25, lines 36-37; p. 33, lines 11-18
76-78	p. 26, lines 3-8
79	p. 25, lines 36-37; p. 33, lines 11-18
80	p. 27, lines 25-27
81	p. 44, lines 16-20
82	p. 29, lines 6-9
83	p. 63, lines 16-28

Following entry of the amendments made herein, claims 1-12, 16-18, and 22-83 will be pending.

The Examiner has required an election under 35 U.S.C. § 121 of one of the following inventions:

I. Claims 1-3, 7, 9, 10, 24-34, 50-52, 63-66 and 69, drawn to a method of altering cell fate comprising contacting the cell *in vitro* with or administering to an organism an agonist of Notch pathway function and an agonist of a cell fate control gene pathway function, classified in class 435, subclass 377.

II. Claims 1, 2, 4, 8-10, 21, 24-34, 50-52, 63-66 and 69, drawn to a method of altering cell fate comprising contacting the cell *in vitro* with or administering to an organism an agonist of Notch pathway function and an antagonist of a cell fate control gene pathway function, classified in class 435, subclass 377.

III. Claims 1, 10, 13, 14, 18, 20, 21, 24-34, 50-52, 63-66 and 69, drawn to a method of altering cell fate comprising contacting the cell *in vitro* with or administering to an organism an antagonist of Notch pathway

function and an agonist of a cell fate control gene pathway function, classified, in class 435, subclass 377.

IV. Claims 1, 13, 15, 19-21, 24-34, 50-52, 63-66 and 69, drawn to a method of altering cell fate comprising contacting the cell *in vitro* with or administering to an organism an antagonist of Notch pathway function and an antagonist of a cell fate control gene pathway function, classified in class 435, subclass 377.

V. Claim 35, drawn to a method of treating a patient by administering to the patient cells produced by the method of claim 34, classified in class 424, subclass 93.1.

VI. Claims 36 and 38-41, drawn to a method of treating macular degeneration comprising agonizing Notch pathway function in retinal pigment epithelium or retinalneuroepithelium of the patient, classified in class 514, subclass 2 or 44.

VII. Claims 37 and 38-44, drawn to a method of treating macular degeneration comprising agonizing Notch pathway function in retinal pigment epithelium or retinalneuroepithelium of the patient, and agonizing Pax6 pathway function, classified in class 514, subclass 2 or 44.

VIII. Claim 45, drawn to a method of changing the cell fate of a mature cell type *in vitro* or in an organism comprising contacting the cell with an antagonist of Notch pathway function, then agonizing Notch pathway function and contacting the cell with an agonist of cell fate control gene pathway function, classified in class 435, subclass 377.

IX. Claim 45, drawn to a method of changing the cell fate of a mature cell type *in vitro* or in an organism comprising contacting the cell with an antagonist of Notch pathway function, then agonizing Notch pathway function and contacting the cell with an antagonist of cell fate control gene pathway function, classified in class 435, subclass 377.

X. Claims 46-49, drawn to a kit comprising a molecule that is an agonist of Notch pathway function and a molecule that alters a cell fate control gene pathway, classified in class 435, subclass 377.

XI. Claims 46 and 48, drawn to a kit comprising a molecule that alters Notch pathway function but is not an agonist, and a molecule that alters a cell fate control gene pathway, classified in class 435, subclass 377.

XII. Claims 53, 55, 57, 60, 61 and 69, drawn to a method for altering cell fate *in vitro* or in an organism comprising contacting the cell with an agonist of Notch pathway function and subjecting the cell to conditions while maintaining the alteration to Notch pathway function, classified in class 435, subclass 377.

XIII. Claims 53, 56, 57, 60, 61 and 69, drawn to a method for altering cell fate *in vitro* or in an organism comprising contacting the cell with an antagonist of Notch pathway function and subjecting the cell to conditions while maintaining the alteration to Notch pathway function, classified in class 435, subclass 377.

XIV. Claims 54, 55, 57, 60 and 61, drawn to a method for producing an organ of a different type comprising contacting cells *in vitro* with or administering to an organism an agonist of Notch pathway function and subjecting the cells to conditions that allow organ differentiation until an organ is produced classified in class 435, subclass 1.1.

XV. Claims 54, 56-57, 60 and 61, drawn to a method for producing an organ of a different type comprising contacting cells *in vitro* with or administering to an organism an antagonist of Notch pathway function and subjecting the cells to conditions that allow organ differentiation until an organ is produced classified in class 435, subclass 1.1.

XVI. Claim 58, drawn to a method of treating a patient by administering to the patient cells of a particular cell fate produced according to the method of claim 53, classified in class 424, subclass 93.1

XVII. Claim 59, drawn to a method of treating a patient by administering to the patient an organ of a particular type produced according to the method of claim 54, classified in class 424, subclass 93.1.

XVIII. Claim 62, drawn to a method for producing an organ comprising an agonist or antagonist of Notch pathway function and an agonist or

antagonist of a cell fate control gene pathway function, classified in class 435, subclass 1.1.

XIX. Claim 67, drawn to a method for screening, comprising altering a cell fate control gene pathway function and contacting the cell with or expressing within the cell test agonists or antagonists of Notch pathway function, classified in class 435, subclass 4.

XX. Claim 68, drawn to a method for screening, comprising altering Notch pathway function and contacting the cell with or expressing within the cell test agonists or antagonists of cell fate control gene pathway function, classified in class 435, subclass 4.

Applicants respectfully point out that claim 5 was not assigned to any Group.

In order to be fully responsive, Applicants hereby provisionally elect the invention of Group IV drawn to a method of altering cell fate comprising contacting the cell *in vitro* with or administering to an organism an antagonist of Notch pathway function and an antagonist of a cell fate control gene pathway function, classified in class 435, subclass 377, with traversal. In view of the amendments made herein, Applicants believe that claims 1-2, 5 24-34, 50-52, 63-66, 69, and 70-83 are within the elected Group IV.

The Examiner further imposed a requirement for election of a specific type of agonist or antagonist, *e.g.*, nucleic acid or protein, upon election of a group. With respect to the Notch pathway antagonist of group I, Applicants provisionally elect a protein antagonist, with traversal. With respect to the cell fate control gene pathway antagonist, Applicants provisionally elect a nucleic acid antagonist that interferes with gene expression, with traversal.

Further, the Examiner required election of a single cell fate control gene if any of groups I-V, VIII-XI, or XVIII-XX are elected. Applicants hereby provisionally elect PAX 6 with traversal.

With respect to division of the invention into twenty groups and additional subgroups relating to the nature of the agonist, antagonist or cell fate control gene, and the reasons stated therefor, Applicants respectfully traverse and request that the restriction requirement be withdrawn or at least revised. Applicants submit that to search the subject matter of, at the very least, groups I-IV, groups VI and VII, groups VIII and IX, groups X and XI, groups XII-XV or groups XIX and XX, together would not be a serious burden on the Examiner.

The M.P.E.P. § 803 (Eighth Edition, August 2001) states:
If the search and examination of an entire application can be made without serious burden, the examiner must examine it on the merits, even though it includes claims to independent or distinct inventions.

Accordingly, Applicants respectfully request that the Restriction Requirement under 35 U.S.C. § 121 be modified to allow the subject matter of claims 1-4, 7-10, 13-15, 18-21, 24-34, 50-52, 63-66, and 69 as originally filed, to be examined in one application.

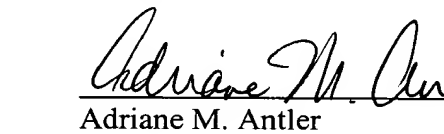
Attorneys for Applicant retain the right to petition from the restriction requirement under 37 C.F.R. § 1.144.

CONCLUSION

Applicants respectfully request that the above-made amendments and remarks be entered and made of record in the file history of the instant application. The Examiner is invited to contact the undersigned with any questions concerning the foregoing.

Respectively submitted,

Date: December 17, 2001



32,605
Adriane M. Antler (Reg. No.)

PENNIE & EDMONDS LLP
1155 Avenue of the Americas
New York, N.Y. 10036
(212) 790-9090

EXHIBIT A
AMENDED CLAIMS WITH MARKINGS
U.S. PATENT APPLICATION NO. 09/614,003

1. (Amended) A method for altering the cell fate otherwise adopted by a cell comprising:

(a) altering Notch pathway function in the cell by a method comprising contacting the cell *in vitro* with, or administering to an organism comprising the cell, [an agonist or antagonist] a modulator of Notch pathway function [in the cell];

(b) concurrently with step (a), altering the function of a cell fate control gene pathway in the cell by a method comprising contacting the cell *in vitro* with, or administering to an organism comprising the cell, [an agonist or antagonist] a modulator of a cell fate control gene pathway function [in the cell], wherein the cell fate control gene pathway is not the Notch pathway; and

(c) subjecting the cell to conditions that allow cell fate determination to occur.

2. (Amended) The method according to claim 1 comprising contacting the cell *in vitro* with [an agonist] the modulator of Notch pathway function.

5. (Amended) The method according to claim 1 comprising administering to an organism comprising the cell [an agonist] the modulator of Notch pathway function [and an agonist of a cell fate control gene pathway function].

50. (Amended) The method according to claim 1[,] or 5[, 6, 16 or 17] wherein the altering of cell fate is a change in tissue or organ type.

63. (Amended) The method according to claim 1 wherein the [agonist or antagonist] modulator of Notch pathway function[,] and the [agonist or antagonist of a] modulator of the cell fate control gene pathway function[,] are purified.

EXHIBIT B
PENDING CLAIMS AFTER ENTRY OF THE AMENDMENT FILED DECEMBER 15, 2001
U.S. PATENT APPLICATION SERIAL NO. 09/614,003

1. (Amended) A method for altering the cell fate otherwise adopted by a cell comprising:

(a) altering Notch pathway function in the cell by a method comprising contacting the cell *in vitro* with, or administering to an organism comprising the cell, a modulator of Notch pathway function;

(b) concurrently with step (a), altering the function of a cell fate control gene pathway in the cell by a method comprising contacting the cell *in vitro* with, or administering to an organism comprising the cell, a modulator of a cell fate control gene pathway function, wherein the cell fate control gene pathway is not the Notch pathway; and

(c) subjecting the cell to conditions that allow cell fate determination to occur.

2. (Amended) The method according to claim 1 comprising contacting the cell *in vitro* with the modulator of Notch pathway function.

3. The method according to claim 2 which further comprises contacting the cell in vitro with an agonist of a cell fate control gene pathway function.

4. The method according to claim 2 which further comprises contacting the cell in vitro with an antagonist of a cell fate control gene pathway function.

5. (Amended) The method according to claim 1 comprising administering to an organism comprising the cell the modulator of Notch pathway function.

6. The method according to claim 1 comprising administering to an organism comprising the cell an agonist of Notch pathway function and an antagonist of a cell fate control gene pathway function.

7. The method according to claim 1 comprising introducing into the cell one or more nucleic acids encoding an agonist of Notch pathway function and an agonist of a cell fate control gene pathway function such that the agonists are expressed by the cell.

8. The method according to claim 1 comprising introducing into the cell one or more nucleic acids encoding an agonist of Notch pathway function and an antagonist of a cell fate control gene pathway function such that the agonist and antagonist are expressed by the cell.

9. The method according to claim 1 wherein the agonist of Notch pathway function is a dominant-active Notch mutant.

10. The method according to claim 1 wherein the agonist is purified.

11. The method according to claim 5 which comprises administering to the organism one or more cells recombinantly expressing the agonist of Notch pathway function and the agonist of the cell fate control gene pathway function.

12. The method according to claim 6 which comprises administering to the organism one or more cells recombinantly expressing the agonist of Notch pathway function and the antagonist of the cell fate control gene pathway function.

16. The method according to claim 1 comprising administering to an organism comprising the cell an antagonist of Notch pathway function and an agonist of a cell fate control gene pathway function.

17. The method according to claim 1 comprising administering to an organism comprising the cell an antagonist of Notch pathway function and an antagonist of a cell fate control gene pathway function.

18. The method according to claim 1 comprising introducing into the cell one or more nucleic acids encoding an antagonist of Notch pathway function and an agonist of a cell

fate control gene pathway function such that the antagonist and agonist are expressed by the cell.

22. The method according to claim 16 which comprises administering to the organism one or more cells recombinantly expressing the antagonist of Notch pathway function and the agonist of the cell fate control gene pathway function.

23. The method according to claim 17 which comprises administering to the organism one or more cells recombinantly expressing the antagonist of Notch pathway function and the antagonist of the cell fate control gene pathway function.

24. The method according to claim 1 in which the cell fate control gene encodes a transcription factor.

25. The method according to claim 24 in which the transcription factor is a homeodomain protein.

26. The method according to claim 25 in which the homeodomain protein is a Pax protein.

27. The method according to claim 26 in which the Pax protein is selected from the group consisting of human or mouse Pax-1, Pax-2, Pax-3, Pax-4, Pax-5, Pax-6, Pax-7, Pax-8 or Pax-9 and Drosophila Eyeless and Twin of Eyeless.

28. The method according to claim 25 in which the homeodomain protein is a Hox protein.

29. The method according to claim 28 in which the Hox protein is selected from the group consisting of Mammalian Hox A1-7, Hox A9-11 or HoxA13; Hox B1-9; Hox C4-6 or Hox C8-13; Hox D1, Hox D3-4 or Hox D8-13; and Drosophila Lab, Pb, Dfd, Scr, Antp, Ubx, Abd-A and Abd-B.

30. The method according to claim 25 in which the homeodomain protein is selected from the group consisting of a DLX protein, LIM homeodomain protein, PBC protein, MEINOX protein, POU protein, PTX protein and NKX protein.

31. The method according to claim 24 in which the transcription factor is selected from the group consisting of a Vestigial protein, MADS domain protein, bHLH protein, SOX protein and T-box protein.

32. The method according to claim 1 in which the cell fate control gene encodes a signaling molecule.

33. The method according to claim 32 wherein the signaling molecule is selected from the group consisting of a Hedgehog protein, a WNT protein, and a TGF /BMP protein.

34. The method according to claim 1 which further comprises expanding the cell by subjecting the cell to cell growth conditions to produce a population of cells.

35. A method of treating a patient by provision of a cell transplant comprising producing cells of a particular cell fate according to the method of claim 34, and administering the cells to the patient.

36. A method of treating macular degeneration in a patient comprising agonizing Notch pathway function in retinal pigment epithelium or retinal neuroepithelium of the patient.

37. The method according to claim 36 further comprising agonizing Pax6 pathway function.

38. The method according to claim 36 or 37, wherein agonizing Notch pathway function comprises contacting the retinal pigment epithelium or retinal neuroepithelium with a protein agonist of Notch pathway function.

39. The method according to claim 38 in which the protein agonist of Notch pathway function is selected from the group consisting of Delta and Serrate.

40. The method according to claim 36 or 37, wherein agonizing Notch pathway function comprises contacting the retinal pigment epithelium or retinal neuroepithelium with a nucleic acid encoding an agonist of Notch pathway function.

41. The method according to claim 40 in which the nucleic acid encodes a dominant active mutant of Notch, Delta or Serrate.

42. The method according to claim 37 wherein the patient is a human.

43. The method according to claim 42, wherein agonizing Pax6 pathway function comprises contacting the retinal pigment epithelium or retinal neuroepithelium with a nucleic acid encoding human Pax6.

44. The method according to claim 42, wherein agonizing Pax6 pathway function comprises contacting the retinal pigment epithelium or retinal neuroepithelium with recombinant human Pax6 protein functionally coupled to a nuclear internalization signal.

45. A method for changing the cell fate of a mature cell type comprising:

(a) antagonizing Notch pathway function in the cell by a method comprising contacting the cell *in vitro* with, or administering to an organism comprising the cell, an antagonist of Notch pathway function in the cell;

(b) after step (a) agonizing Notch pathway function in the cell by a method comprising contacting the cell *in vitro* with, or administering to the organism comprising the cell, an agonist of Notch pathway function in the cell;

(c) concurrently with step (b), altering the function of a cell fate control gene pathway in the cell by a method comprising contacting the cell *in vitro* with or administering to the organism comprising the cell, an agonist or antagonist of cell fate control gene pathway function in the cell; and

(d) subjecting the cell to conditions that allow cell fate determination to occur.

46. A kit comprising in one or more containers (a) a molecule that alters Notch pathway function; and (b) a molecule that alters a cell fate control gene pathway.

47. The kit of claim 46 wherein the molecule of (a) is an agonist.

48. The kit of claim 46 wherein the molecule of (a) and the molecule of (b) are purified.

49. The kit of claim 47 wherein the molecule of (a) is a dominant-active Notch mutant or a nucleic acid comprising a sequence encoding such a mutant, said sequence operably linked to a promoter.

50. (Amended) The method according to claim 1 or 5 wherein the altering of cell fate is a change in tissue or organ type.

51. The method according to claim 1 wherein the cell is a mammalian cell.

52. The method according to claim 51 wherein the cell is a human cell.

53. A method for altering the cell fate otherwise adopted by a cell comprising:

(a) altering Notch pathway function in the cell by a method comprising contacting the cell *in vitro* with or administering to an organism comprising the cell an agonist or antagonist of Notch pathway function in the cell; and

(b) subjecting the cell to conditions that allow cell fate determination to occur while maintaining the alteration to Notch pathway function, until a cell of an altered cell fate is produced.

54. A method for producing an organ of a different type than would be otherwise produced by one or more cells by comprising:

(a) altering Notch pathway function in one or more cells by a method comprising contacting the cells *in vitro* with or administering to an

organism comprising the cells an agonist or antagonist of Notch pathway function in the organ; and

(b) subjecting the cells to conditions that allow organ differentiation and cell growth to occur while maintaining the alteration to Notch pathway function, until a population of cells forming an organ is produced.

55. The method according to claim 53 or 54 comprising contacting the cell *in vitro* with an agonist of Notch pathway function.

56. The method according to claim 53 or 54 comprising contacting the cell *in vitro* with an antagonist of Notch pathway function.

57. The method according to claim 53 or 54 which further comprises expanding the cell by subjecting the cell to cell growth conditions to produce a population of cells.

58. A method of treating a patient by provision of a cell transplant comprising producing cells of a particular cell fate according to the method of claim 53, and administering the cells to the patient.

59. A method of treating a patient by provision of an organ transplant comprising producing an organ of a particular type according to the method of claim 54, and administering the organ to the patient.

60. The method according to claim 53 or 54 wherein the cell is a mammalian cell.

61. The method according to claim 60 wherein the cell is a human cell.

62. The method according to claim 54 which further comprises concurrently with step (a) altering the function of a cell fate control gene pathway in the cell by a method comprising contacting the cell *in vitro* with, or administering to an organism comprising the cell, an agonist or antagonist of a cell fate control gene pathway function in the cell, wherein the cell fate control gene pathway is not the Notch pathway.

63. (Amended) The method according to claim 1 wherein the modulator of Notch pathway function and the modulator of the cell fate control gene pathway function are purified.

64. The method according to claim 1 or 53, wherein the cell fate produced by said method is apoptosis.

65. The method according to claim 63 wherein the cell is a human cell.

66. The method according to claim 64 wherein the cell is a cancer cell.

67. A method for screening for agonists or antagonists of Notch pathway function, comprising:

(a) altering a cell fate control gene pathway function in a cell;

(b) contacting the cell with or recombinantly expressing within the cell one or more test agonists or antagonists of Notch pathway function while subjecting the cell to conditions that allow cell fate determination to occur; and

(c) examining the cell for an alteration in cell fate as compared to cells not contacted with or expressing the test agonists or antagonists.

68. A method for screening for agonists or antagonists of a cell fate control gene pathway function, comprising:

(a) altering Notch pathway function in a cell;

(b) contacting the cell with or recombinantly expressing within the cell one or more test agonists or antagonists of cell fate control gene pathway function while subjecting the cell to conditions that allow cell fate determination to occur; and

(c) examining the cell for an alteration in cell fate as compared to cells not contacted with or expressing the test agonists or antagonists.

69. The method according to claim 1 or 53, wherein the cell fate that would have been otherwise adopted by said cell is apoptosis.

70. (New) The method of claim 2, wherein the modulator of Notch pathway function is an antagonist of Notch pathway function.

71. (New) The method of claim 70, which comprises contacting the cell *in vitro* with the modulator of a cell fate control gene pathway function.

72. (New) The method of claim 71, wherein the modulator of the cell fate control gene pathway function is an antagonist of the cell fate control fate control gene pathway function.

73. (New) The method of claim 70, which comprises administering to an organism comprising the cell the modulator of a cell fate control gene pathway function.

74. (New) The method of claim 73, wherein the modulator of the cell fate control gene pathway function is an antagonist of the cell fate control fate control gene pathway function.

75. (New) The method of claim 5, wherein the modulator of Notch pathway function is an antagonist of Notch pathway function.

76. (New) The method of claim 75, which comprises contacting the cell *in vitro* with the modulator of a cell fate control gene pathway function.

77. (New) The method of claim 76, wherein the modulator of the cell fate control gene pathway function is an antagonist of the cell fate control fate control gene pathway function.

78. (New) The method of claim 75, which comprises administering to an organism comprising the cell the modulator of a cell fate control gene pathway function.

79. (New) The method according to claim 70 comprising contacting the cell *in vitro* with an antagonist of Notch pathway function.

80. (New) The method according to claim 72 comprising introducing into the cell one or more nucleic acids encoding an antagonist of Notch pathway function and an antagonist of a cell fate control gene pathway function such that the antagonists are expressed by the cell.

81. (New) The method according to claim 70 wherein the antagonist of Notch pathway function is a dominant-negative Notch mutant.

82. (New) The method according to claim 70 wherein the antagonist is purified.

83. (New) The method according to claim 70 or 75 wherein the altering of cell fate is a change in tissue or organ type.